

1/2 022 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--IMMUNOCHEMICAL AND ELECTROPHORETIC STUDY OF MULTIPLE FORMS OF
ESTERASES OF CARBONIC ACID ESTERS IN RATS -U-
AUTHOR-(03)-KASHKIN, K.P., SURINOV, B.P., BOCHKOVA, D.N.
COUNTRY OF INFO--USSR
SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 49,
NR 6, PP 39-42
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ESTERASE, LIVER, DIGESTIVE SYSTEM, PANCREAS, LUNG, SPLEEN,
BRAIN, BLOOD SERUM, CHOLINESTERASE, ISOENZYME
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/0680 STEP NO--UR/0219/70/049/006/0039/0042
CIRC ACCESSION NO--AP0131243
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131283

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN EXPERIMENTS ON AUGUST RATS INVOLVING THE USE OF ENZYMOELECTROPHORESIS IN AGAR GEL THE AUTHORS INVESTIGATED THE SPECTRUM OF ESTERASES OF CARBONIC ACID ESTERS OF THE HYALOPLASMA OF CELLS OF THE LIVER, MUCOUS MEMBRANE OF THE STOMACH, SMALL AND LARGE INTESTINE, PANCREAS, LUNGS, KIDNEYS, SPLEEN, TESTES, BRAIN AND BLOOD SERUM. USING THE DIFFERENCES IN THE SENSITIVITY OF ESTERASES OF DIVERSE TYPE TO THE EFFECT OF A NUMBER OF INHIBITORS (ORGANOPHOSPHATES, SULPHYDRYL REAGENTS, PROSERINE, CUSO SUB4) AMONG RAT TISSUE ESTERASES THE AUTHORS REVEALED UP TO 7-8 ISOFORMS OF ACETYLESTERASES AND 6-7 CARBOXYLESTERASES, IN THE BLOOD SERUM ALSO ARYLESTERASE AND TWO CHOLINESTERASES. IT IS SHOWN THAT IRRESPECTIVE OF THE ORIGIN THE ORGANS, DEVELOPING FROM THE SAME AND DIFFERENT EMBRYONIC SHEATHS, ARE DISTINGUISHED BY A DEFINITE SPECTRUM AND A RELATIVE ACTIVITY OF ISOFORMS OF DIVERSE TYPES OF ESTERASES. THE MOST COMPLEX SET OF ACETYL AND CARBOXYLESTERASES AND HIGH SPECIFIC ESTERASE ACTIVITY ARE REFERRED TO CELLS OF ORGANS OF ENDODERMAL ORIGIN AND, IN PARTICULAR, BY HYALOPLASMA OF CELLS OF THE MUCOSA OF THE STOMACH, SMALL INTESTINE AND LIVER OF RATS. WITH THE AID OF RABBIT PRECIPITATING SERA AGAINST THE HYALOPLASMA OF CELLS OF A NUMBER OF RAT ORGANS IN THE COMPOSITION OF ISOFORMS OF RAT ESTERASES THERE WERE REVEALED ORGANOSPECIFIC COMPONENTS AND ISOENZYMES ANTIGENS PREVALENTLY CONTAINING IN CERTAIN SUBCELLULAR STRUCTURES MANY OR SOME ORGANS. FACILITY: INSTITUTE OF MEDICAL RADIOLOGY OF THE ACADEMY OF MEDICAL SCIENCES OF THE USSR, OBNINSK.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--DETERMINATION OF THE ACTIVITY OF ISOENZYMES BY AGAR GEL
ELECTROPHORESIS -U-
AUTHOR-(04)-SURINOV, B.P., KASHKIN, K.P., BOCHKOVA, D.N., KUZINA, A.A.
COUNTRY OF INFO--USSR
SOURCE--LAB. DELO 1970, (4), 240-3 (RUSS)
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ISOENZYME, AGAR, ELECTROPHORESIS, RAT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0966 STEP NO--UR/9099/70/000/004/0240/0243
CIRC ACCESSION NO--AP0133052
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133052

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HORIZONTAL AGAR GEL ELECTROPHORESIS OF RAT LIVER TISSUE YIELDED 9 BANDS OF ESTERASE, 4 OF ACID PHOSPHATASE, AND 2 OF ASPARTATE AMINOTRANSFERASE, AND RAT BLOOD SERUM YIELDED 12 BANDS OF PROTEIN AND 3 BANDS OF ALK. PHOSPHATASE. THE 3 ALK. PHOSPHATASE BANDS WERE VERY CLOSE TOGETHER AND WERE PROBABLY NOT ISOENZYMES BUT ARTIFACTS. FACILITY: LAB. RADIATS. IMMUNOL., INST. MED. RADIOL., OBNINSK, USSR.

UNCLASSIFIED

Immunology

USSR

UDC 576.858.7(07).3-036.22+616-022.14

POZODINA, V. V., KORESHKOVA, G. V., BOCHKOVA, N. G., SENQUTA, N. B., and
MEDVEDEVA, G. S., Institute of Poliomyelitis and Viral Encephalitides,
Academy of Medical Sciences USSR

"Mixed Arbovirus Infections (the Diagnostic, Genetic, and Vaccine Aspects of
the Problem"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 8, Aug 73, pp 89-90

Abstract: The ecology of arboviruses permits a combined source of infection. Simultaneous infection with Japanese encephalitis and other group A and B arboviruses were observed. Features in the growth of experimental mixed infections were studied for group A (Sindbis + Gets, group B (West Nile + Japanese encephalitis), and group A + B (West Nile + Sindbis). Several different immunological phenotypes were observed and characterized. The interaction of the individual virus type in a mixture may be related to its phenotype. Differences were observed in the experimental A + B mixtures.

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1/2 027 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--EXCITATION OF BANDS OF THE FIRST NEGATIVE SYSTEM OF N POSITIVE SUB2
BY HE(2 PRIME 1,3S, 2 PRIME 1,3P) ATOMS -U-
AUTHOR-(02)-BOCHKOVA, O.P., CHERNYSHEVA, N.V.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(1), 35-8

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--HELIUM, NITROGEN, HIGH FREQUENCY DISCHARGE, ENERGY BAND
STRUCTURE, IONIZATION CROSS SECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1980/1325

STEP NO--UR/0051/70/020/001/0035/0038

CIRC ACCESSION NO--AP0049486

UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0049486

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SELECTIVE EXCITATION OF BANDS OF THE 1ST NEG. SYSTEM OF N MOL. ION BETA PRIME2 SIGMA PRIME POSITIVE SUBU,NU' CHI PRIME2 SIGMA G,NU" IN HIGH FREQUENCY NONELECTRONIC DISCHARGE OF HE-N MIXT. OCCURRED OWING TO IMPACTS OF 2ND ORDER N MOL. WITH THE ATOMS OF HE IN THE STATES 2 PRIME1,3 S, 2 PRIME1,3 P. THE ESTNS. OF THE EFFECTIVE CROSS SECTIONS FOR THE REACTIONS: HE(2 PRIME1,3S, 2 PRIME1,3P) PLUS N SUB2 (CHI PRIME1 SIGMA SUBG,NU"0) YIELDS N SUB2 PRIME POSITIVE (B PRIME2 SIGMA U,NU') PLUS HE PLUS E WERE MADE. THEY EQUAL 10 PRIME NEGATIVE17 MINUS10 PRIME NEGATIVE16 CM PRIME2 FOR HE(2 PRIME1,3S), AND 10 PRIME NEGATIVE16 MINUS 10PRIME NEGATIVE 15 CM PRIME2 FOR HE(2 PRIME1,3RHO) FOR LEVELS WITH QUANTUM NO. NU' EQUALS 0-7. THE EXPTS. WERE CARRIED OUT IN A HIGH FREQUENCY DISCHARGE TUBE 10 MM DIAM. (6 MHZ) FILLED WITH HE-N MIXT. (N CONCN. VARYING 0.0.

UNCLASSIFIED

USSR

UDC: 548.735.46

KUZ'MIN, E. A., BOCHKOVA, R. I., SAF'YANOV, Yu. N., GOLOVACHEV, V. P., and BELOV, N. V.

"Systematic Analysis of the Paterson Function on the Basis of Crystal Symmetry"

Moscow, Kristallografiya, vol 18, No 4, 1973, pp 681-688

Abstract: This paper, bearing the subtitle "Principles of Rhombus Degeneration in the Vector Systems of Lower Syngony Crystals," is the fifth installment of a series bearing the general title given above. The function of the present installment is to consider cases of the degeneration of rhombi for variants of a particular cut, in Fedorov groups of crystals having lower syngonies with three and a family of symmetry elements. The degeneration of rhombi in Fedorov groups with a single symmetry element was examined in an earlier paper (E. A. Kuz'min, et al, Sb. Patersonovskiy metody rasshifrovki struktur -- Collection of Works on Paterson Methods of Structure Interpretation -- "Shtiintsa," Kishinev, 1972). The results obtained in that article are here extended to groups with several such elements. The authors thank V. V. Ilyukhin for his participation in the discussion of the results.

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1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--EFFICACY OF DITHIAZONINE TREATMENT OF PATIENTS WITH STRONGYLOIDOSIS
-U-

AUTHOR--(02)-PCDOROZHNYI, P.G., BOCHKOVSKAYA, S.A.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 6, PP 110-112

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STRONGYLOIDIASIS, KIDNEY FUNCTION, DRUG TREATMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3002/1883

STEP NO--UR/0504/70/042/006/0110/0112

CIRC ACCESSION NO--AP0129242

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129242

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDIED THE EFFICACY OF DITHIAZONINE TREATMENT OF PATIENTS WITH STRONGYLOIDOSIS. A TOTAL OF 75 PATIENTS AT THE AGE OF 20-65 YEARS (31 WOMEN AND 44 MEN) WERE UNDER OBSERVATION. PRIOR TO TREATMENT DISORDERS OF PROTHROMBIN FORMATION, PROTEIN, CARBOHYDRATE, ANTITOXIC AND PIGMENTARY FUNCTION OF THE LIVER WERE FOUND IN SOME PATIENTS. DITHIAZONINE WAS DESCRIBED IN A DOSE OF 0.1 G 2-3 TIMES A DAY DURING A PERIOD OF 7-10 DAYS. THERAPY PROVED EFFECTIVE IN ALL THE PATIENTS AFTER THE COURSE OF TREATMENT. ALONGSIDE IMPROVEMENT OF THE GENERAL CONDITION OF THE PATIENTS THE RENAL FUNCTIONS DISTURBED BEFORE TREATMENT BECAME NORMALIZED. A CONCLUSION IS THAT DITHIAZONINE TREATMENT OF PATIENTS WITH STRONGYLOIDOSIS IS HIGHLY EFFECTIVE. NO SIDE EFFECTS EXCEPT ONE CASE, WERE OBSERVED.
FACILITY: KAFEDRA TERAPII, SPETSIALIZATSII I USOVERSHENSTVOVANIYA VRACHEY L'VEVSKOGO MEDINSTITUTA I TERAPEVTICHESKOYE OTDELENIYE L'VOVSKOY TSENTRAL'NOY DOROZHNOY BOL'NITSY.

UNCLASSIFIED

USSR

UDC: 62-525:621.375

BOCHNEV, Yu. A., KOMISSAROV, O. A.

"A Pressure Amplifier"

USSR Author's Certificate No 254208, filed 29 Jun 68, published 4 Mar 70
(from RZh-Avtomatika, Telemekhanika, i Vychislitel'naya Tekhnika, No 11,
Nov 70, Abstract No 11A102 P)

Translation: This Author's Certificate introduces a pneumatic pressure amplifier with high precision. The amplifier contains a conical damper suspended between high-pressure and low-pressure flows. The conical shape of the damper allows its position to be centered in the flow, and the vortex flow which develops at a certain value of the controlling pressure causes the damper to rotate, thus stabilizing its position. One illustration.
T. R.

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USSR

UDC 539.192/.194+535.33/.34.01

BOCHVAR, D. A., BAGATUR'YANTS, A. A., BORISOV, YE. V.

"Study of π -Electron Structure of Substituted Sidnons and Sidnonimins by the Huckel Method With Parameters Obtained From the Pariser-Parr-Popl Method"

Izucheniye π -elektronnogo stroeniya zameshchennykh sidonov i sidnoniminov po metodu Khyukkelya s parametrami, poluchennymi iz metoda Parizera-Parra-Popla (cf. English above), Editorial Collegium of Zhurnal fizicheskoy khimii, Academy of Sciences USSR, Moscow, 1971, 17 pp, ill., 14 references, Deposition No 2523-71 (from RZh-Fizika, No 5, May 71, Abstract No 5D113)

Translation: Twenty-three molecules of substituted sidnons and sidnonimins were calculated by the simple Huckels method. Two sets of Coulomb and resonance integrals were used that were calculated from the corresponding matrix elements of the Pariser-Parr-Popl method. Molecular diagrams and energy characteristics of the molecules calculated are given. The properties of sidnons and sidnonimins of both substitutes and conductors of electron effects are discussed, and the effects of redistribution of electron density in the heteroring under the effect of substitutes R, R', R'' are discussed. It is shown that the effect of substitutes has a stronger

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USSR

BOCHVAR, D. A., et al, Izucheniye π -elektronnogo stroeniya zameshchennykh sidonov i sidnoniminov po metodu Khyukkelya s parametrami, poluchennymi iz metoda Parizera-Parra-Popla

effect on the charges of N_2^- and C_4^- atoms. It was found that sidnons and sidnonimins, in accordance with the data from analysis of the physicochemical properties and reaction capacities of these molecules, are weak conductors of π -electron effects from the third and fourth positions of the ring into the fifth and sixth positions.

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1/2 016 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--HUECKEL, CALCULATION FOR 10,5 CORONENE, C SUB20 H SUB10 -U-
AUTHOR--(03)-BOCHVAR, D.A., GALPERN, YE.G., GAMBARYAN, N.P.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 435-7
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--MOLECULAR ORBITAL, ELECTRON DENSITY, UNSATURATED HYDROCARBON,
ELECTRON DISTRIBUTION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0637 STEP NO--UR/0062/70/000/002/0435/0437
CIRC ACCESSION NO--AP0119549
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0119549

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM THE CALC. OF ELECTRON D. DISTRIBUTION IN CORONENE USING THE HUECKEL VARIATION OF LCAO MO CALC. IT WAS SHOWN THAT 10,5-CORONENE (C SUB30 H SUB10) HAS A CLOSED PI ELECTRON CLOUD. ALL ATOMS OF THE INNER RING CARRY AN EXCESS ELECTRONIC CHARGE, THOSE ON THE OUTER RING ALTERNATE IN VALUES OF ELECTRON D. THE APICAL ATOMS APPEAR TO HAVE RATHER HIGH VALUES OF POS. CHARGES AS A RESULT OF ELECTRON FLOW AWAY FROM THESE POSITIONS. A DISTRIBUTION MAP IS SHOWN. FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 669.295:620.1

BOCHVAR, G. A., YANOVSKAYA, N. V.

"Structures and Properties of VTZ-1 Alloy as a Function of Cooling Conditions from Single-Phase β -state Temperature"

Moscow, Tsvetnye Metally, No 8, 1972, p 62.

Abstract: The process of formation of the microstructure and mechanical properties of VTZ-1 alloy was studied as a function of the conditions of phase recrystallization upon cooling of the material from the temperature of the single-phase β -state. The material used in the study was a group of series-produced bars of VTZ-1 alloy 20 mm in diameter with no β grain structure boundaries visible under 100-500 \times magnification. Photomicrographs are presented of the microstructures of specimens produced by various cooling rates. The results themselves are not unexpected: fixation of less equilibrium structures and phase composition during preliminary cooling results in the production, following additional annealing, of higher strength and lower ductility. However, this factor is not well considered at present in the production of various titanium alloy semifinished goods. The temperature of completion of deformation and cooling conditions of the material following deformation are not often considered as an important factor influencing the properties of the material following final heat treatment.

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USSR
Aluminum and Its Alloys

USSR

UDC 669.017:620.18

BOCHVAR, N. R., DRITS, M. Ye., and ROKHLIN, L. L., Moscow

"Some Properties of Extruded Aluminum Eutectic Alloys"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 72, pp 54-59

Abstract: A study was made to evaluate the possibility of producing fibrous structures in aluminum eutectic alloys by means of extrusion and to determine their mechanical and physical properties. Two groups of alloys were studied. In the first group the volume percentage of the strengthening phase was small (5 to 15%): 1--Al-Al₃Fe, 2--Al-Al₆Mn, 3--Al-Al₃Ni, 4--Al-Al₄Ce, 5--Al-Si and 6--Al-Mg₂Si; in the second group the strengthening phase amounted to almost 50%: 7--Al-Al₂Cu, 8--Al-Al₃Mg₂; 9--Al-MgZn₂ and 10--Al-S(Al₂CuMg). It was established that the strengthening phase in the Al-Al₃Mg₂ alloy has a fibrous structure as a result of hot extrusion and annealing, while the strengthening phase in the other investigated systems is crushed after extrusion. The highest strength properties at room temperature in the hot-extruded state are achieved in alloys containing approximately equal volumes of the strengthening phase and matrix (Al-Al₃Mg₂, Al-Al₂Cu, Al-MgZn₂, and Al-Al₂CuMg), at a very low value of relative elongation. At 400°C these alloys exhibit superelasticity. The coefficient of ultrasonic damping for

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BOCHVAR, N. R., et al., Fizika i Khimiya Obrabotki Materialov, No 5,
Sep-Oct 72, pp 54-59

eutectic aluminum alloys is low in the hot-extruded condition and deteriorates with annealing. 2 figures, 2 tables, 16 bibliographic references.

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USSR

UDC 669.715'5'721+669.715'5'296]:534-8

DRITS, M. Ye., ROKHLIN, L. L., BOCHVAR, N. R., GUR'YEV, I. I., and
DZYUBENKO, M. I., All-Union Institute of Light Alloys

"Sound Conduction of Al+20% Zn Alloy With Additions of Magnesium and
Zirconium as a Function of Conditions of Heat and Pressure Treatment"

Tekhnol. legkikh splavov. Nauch.-tekhn. byul. VILSa (Technology of Light
Alloys. Scientific and Technical Bulletin of All-Union Institute of Light
Alloys), 1971, No 4, pp 9-13 (from RZh-Metallurgiya, No 1, Jan 72, Abstract
No 11727 by I. Yeroshenkova)

Translation: The authors studied the influence of homogenization, as well
as pressing temperature, annealing, and aging on the ultrasound attenuation
coefficient in alloys of Al 20% Zn and 0.1-0.3% Zr or 0.1-0.2% Mg. Optimum
conditions of heat and pressure treatment to assure lowest values of the
ultrasound attenuation coefficient in the alloys were determined: for
Al-Zn-Mg alloy homogenization of ingots at 500°, pressure treatment at
400°, annealing at 350° with subsequent cooling, resulting in no signifi-
cant decomposition of the solid solution of Al, and natural aging; for
Al-Zn-Zr alloy homogenization of ingots at 500° and pressure treatment at
450-500°. Four illustrations. Bibliography with four titles.

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USSR

ROKHLIN, L. L., ZUSMAN, L. L., and BOCHVAR, N. R.

"Light Alloys with Specific Acoustic Properties"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970,
pp 199-202, resume

Translation: Data are presented on the effect of alloying and structural factors (grain size, degree of cold hardening, and the decomposition degree of supersaturated solid solution) on the ultrasound damping factor of magnesium and lithium alloys. The effect of these factors on both kinds of alloys is compared. Acoustic properties of some alloys of optimum composition for use as materials in sound-conducting devices are presented. Six figures, eight bibliographic references.

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USSR
Analysis and Testing

USSR

UDC 669.7.017:620.186.4

BOCHVAR, O. S., REPINA, L. P., and ARSENOVA, T. N., Moscow Aviation Technological Institute, Chair of the Science of Metals and of the Technology of Heat Treatment

"Features of the Microstructure of Plastic Deformation and Recrystallization of an Aluminum Alloy with Various Heterophasing"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 3, 1973, pp 145-146

Abstract: A study was made of the microstructure of two complexly alloyed aluminum alloys of the Al-Cu-Li-Mn-Cd system after plastic deformation. The alloys contained (in wt%): Cu 5.02 & 4.92, Li 1.21 & 0.94, Mn 0.6 & 0.55, Cd 0.14 & 0.11, and Al the rest, respectively; they were homogenized at 510° for 24 hrs and deformed at 490° by axial compression. The effect of the heterophase condition of the structure on the development of plastic deformation was investigated. The plastic deformation of specimens of the second alloy is realized mainly by twinning. The large twins developing in the process of hot deformation propagate up to grain boundaries. The microstructures of specimens of the first alloy demonstrate the changes in the recrystallized structure determined by the correlation of deformation mechanisms. The recrystallized

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USSR

BOCHVAR, O. S., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 3, 1973, pp 145-146

structure is distinguished both by grain size and by the number of twinned interlayers and annealing twins. Four figures, and one table.

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USSR

UDC 669.715'3:539.4:539.377

BOCHVAR, O. S., KISELEV, N. I.

"Effect of Deformation, Temperature, and Time Factors on the Structure and Properties of the Alloy"

V sb. Struktura i svoystva legk. splavov. (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 101-105 (from RZh-Metallurgiya, No 4, Apr 73, Abstract No 4I639)

Translation: A study was made of the effect of the macrostructure of the ingots and also the deformation conditions on the structure and properties of heat-treated D1 alloy. The initial macrostructure of the ingot affects the properties of the deformed heat treated alloy D1. The lower values of the strength characteristics and anisotropy of δ and ψ are noted in stampings obtained from cast billets homogenized at 500° for 12 hours having a mixed macrostructure (globular and feathery). Compacting at high temperatures does not eliminate the twins of the cast structure of the D1 alloy. The mechanical twins, which are a characteristic attribute of the "feathery" or "fan-like" structure are retained in the structure of the D1 alloy undergoing hot compacting, stamping at 460-440°, and quenching from 500°. 3 illustrations, 4 tables, and a 7-entry bibliography.

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USSR

UDC 669.71:548.53

BOCHVAR, O. S., ORLOVA, A. I., KUNYAVSKAYA, T. M., SOLODOVA, V. F.

"Kinetics of Technical Aluminum Recrystallization Process"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 58-61 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4I626)

Translation: A study was made of the effect of the chemical composition and annealing conditions on the kinetics of the process of recrystallization of technical aluminum sheets type AD00 (99.7% Al) and AD1 (99.4% Al). The sheets 2 mm thick were obtained by the method of roll rolling from ingots with globular macrostructure homogenized at 560° for 24 hours with a 300 × 1,200 mm cross section cast by the continuous casting method. Hot deformation of the ingots was done at 400-360° with a total degree of deformation of 96.5%. Cold deformation was carried out with a degree of deformation of 80% without intermediate annealing. The kinetic curves were constructed for 200-600° every 50°. The controllable properties were σ_B , $\sigma_{0.2}$, and δ . The isochrons σ_B and δ were constructed for holding 10 and 60 minutes. The characteristic microstructures of the annealed specimens of sheet technical aluminum of two compositions are presented. The process of recrystallization of the cold-rolled AD00 and AD1 aluminum

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USSR

BOCHVAR, O. S., et al., Struktura i svoystva legk. splavov, Moscow, Nauka Press, 1971, pp 58-61

develops as recrystallization in situ. The difference in the kinetics of the recrystallization process is caused by different type of substructure arising during the process of polygonization at increased temperatures. The consequence of the different dislocation structure of the cold-rolled aluminum is a different mechanism of the polygonization process at increased temperatures. This different dislocation structure is, in turn, caused by a different nature of the phases and degree of heterophase nature of the initial structure of the ingot. Three illustrations and a 7-entry bibliography.

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USSR

UDC 669.71.018.29.621.785.362

BOCHVAR, O. S., KUNYAVSKAYA, T. M., KIRPA, I. G., PCHELIN, A. T., EKHINA, Ye. V.

"Influence of the Initial Macrostructure of the Ingot on the Nature of Softening During Annealing of Sheets of Technical Aluminum"

Metalloved. Splavov Legkikh Met. [Metal Science of Light Metal Alloys -- Collection of Works], Moscow, Nauka Press, 1970, p.11-15. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I662 by the authors).

Translation: The influence of the type of initial macrostructure of an ingot, macrograin size, and relationship of Fe and Si impurities on the mechanical properties and structure of cold-rolled Al sheets after annealing is studied. The hereditary influence of the type of casting structure of the ingot on the microstructure of annealed sheets is demonstrated, as well as the influence of grain size of the macrostructure of initial ingots on the displacement of the temperature of the beginning of intensive softening. 2 figs; 1 table.

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USSR

UDC 669.716:621.785.3

BOCHVAR, O. S., KUNYAVSKAYA, T. M., KIRPA, I. G., PCHELIN, A. T., and
~~BOCHVAR~~, Ye. V.

"The Effect of the Initial Macrostructure of the Ingot on the Weakening Character In Annealing Sheets of Industrial Aluminum"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 11-15, resume

Translation: Effects of the type of macrostructure of the initial ingot, the size of the macrograin, and also the relation of iron and silicon admixtures after annealing on the mechanical properties and structure of cold-rolled aluminum sheets after annealing are discussed. The hereditary effect of the type of cast structure of the ingot on the microstructure of annealed sheets is demonstrated, as is the effect of macrostructure grain sizes of initial ingots on the shift in temperature of the beginning of intensive weakening. Two figures, one table.

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USSR

UDC 669.715.017.3:548.5:621.785.78

BOCHVAR, O. S., and SINANYAN, L. G.

~~"Modifications in the Fine Structure of the AK4-1 Alloy as a Result of Aging"~~

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970,
pp 59-63, resume

Translation: Modifications arising in the fine structure of the AK4-1 alloy as a result of aging for 10, 100, and 1000 hrs in the temperature interval of 125-450°C were investigated by the method of harmonic analysis of X-ray interference lines. A correlation was noted between microdistortions of the crystal lattice and strength characteristics of the alloy. In the authors' opinion, the decomposition process of the supersaturated solid solution is related to the presence of packing defects on which, as a result of segregation of atoms of alloying elements, Suzuki atmospheres develop. Three figures, one table, twelve bibliographic references.

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Aluminum and Its Alloys

USSR

B

UDC 669.715:669.017.3

SINANYAN, L. G., and DUCHVAK, O. S., Moscow

"Investigation of Packing Defects in an Aluminum Alloy"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 4, Jul-Aug 70, pp 126-130

Abstract: The presence of deformation packing defects and twinned packing defects was determined by x-ray examination and the role of the AK4-1 alloy (Cu—2%; Mg—1.3%; Fe—1%; Ni—0.9%; Si—0.15%; Al—the rest; and Cu/Mg=1.5/1.0) in the aging process investigated. Packing defects can arise in the AK4-1 alloy as a result of strain hardening; in this case, full dislocations disintegrate into partial dislocations with a band of packing defects of equal slip plane (111) between them. Experimentally derived isochrones of packing defects demonstrate a primary growth of twinned packing defects which reflects the effect of Suzuki atmospheres. The segregation according to Suzuki probably represents a precondition of the phase transformation. Isochrones of the crystal lattice period of the AK4-1 alloy, the conventional yield limit $\bar{\sigma}_{0.2}$, and the relations of $\bar{\sigma}_{0.2}/\bar{\sigma}$ and of twinned to deformation packing defects demonstrate a correlation of x-ray examination data with variations of mechanical properties of the AK4-1 alloy. Maximum strength values were observed after 10, 100, and 1000 hrs of aging at 200, 175, and 150°C, respectively which correspond to the 1/2

USSR

SINANYAN, L. G., and BOCHVAR, O. S., Izvestiya Akademii Nauk SSSR, Metallurgiya, No 4, Jul-Aug 70, pp 126-130

condition of maximum development of Suzuki atmospheres. No segregation on packing defects was found by x-ray examination after 10 hrs of aging at temperatures over 350°C.

2/2

USSR

UDC 616.28-008.55-07:617.761-009.24-073.96

BOCHVAROV, N. K., Oroneurological Department of the Clinic of Ear, Nose, and Throat Diseases, Medical Institute, Sofia

"Transformation of Postrotation Rotatory Nystagmus into Contralateral Nystagmus"

Moscow, Vestnik Otorinolaringologii, No 1, 1971, pp 12-14

Abstract: Forty-six patients with vestibular disorders differing in nature and localization were rotated at a speed of $108^{\circ}/\text{sec}$ for one minute. In 32, rotatory nystagmus on only one side changed into contralateral horizontal nystagmus while rotatory nystagmus on the opposite side remained normal. In 14, rotatory nystagmus on both sides changed into contralateral horizontal nystagmus. In 31, postrotation rotatory nystagmus on the side of decreased vestibular excitability changed into contralateral nystagmus toward the side of increased vestibular excitability. Thus, postrotation rotatory nystagmus, which should be in the direction of low vestibular excitability, is transformed into contralateral horizontal nystagmus toward the labyrinth with high vestibular tone or it is in the same direction as spontaneous horizontal nystagmus. This transformation is attributed to the
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BOCHVAROV, N. K., Vestnik Otorinolaringologii, No 1, 1971, pp 12-14

interaction of the reflex arcs of rotatory and horizontal nystagmus in the brain stem. A decrease in tone of one labyrinth gives rise to spontaneous nystagmus toward the healthy side or side of higher excitability.

2/2

1/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ALPHA DECAY OF PRIME211 RN AND PRIME212 RN -U-

AUTHOR--(05)-AFANASYEV, V.P., BOCHVAROVA, M., GOLOVKOV, N.A., GROMOVA,
I.I., IVANOV, I.I.
COUNTRY OF INFO--USSR

SOURCE--LAB. OF NUCLEAR PROBLEMS. 1970. 11P. DEP. CFSTI

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS

TOPIC TAGS--ALPHA DECAY, SPECTROGRAPH, RADON ISOTOPE, POLONIUM ISOTOPE,
RADIOACTIVE DECAY, ASTATINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0174

STEP NO--UR/0000/70/000/000/0011/0011

CIRC ACCESSION NO--AT0127798

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0127798

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ALPHA DECAY OF PRIME211 RN AND PRIME212 RN WAS INVESTIGATED USING THE MAGNETIC SPECTROGRAPH. BESIDES THE KNOWN ALPHA TRANSITIONS OF PRIME211 RN (5850 KEV (1), 5783 KEV (1.84), 5616 KEV (0.08)) THERE WERE OBSERVED THE NEW ONES: 5466 KEV (2 TIMES 10 PRIME NEGATIVE4), 5276 KEV (4.4 TIMES 10 PRIME NEGATIVE4, 5179 KEV (8 TIMES 10 PRIME NEGATIVE5) 5055 KEV (2 TIMES 10 PRIME NEGATIVE5). THE HINDRANCE FACTORS ARE PRESENTED. NEW LEVELS: 391.4 KEV, 585 KEV, 684 KEV ARE INTRODUCED FOR THE PRIME207 PO NUCLEUS. FOR PRIME212 RN THE 5588 KEV (5 TIMES 10 PRIME NEGATIVE4) ALPHA TRANSITION TO THE 687 KEV LEVEL OF PRIME208 PO, WAS OBSERVED. THE PARTS OF ALPHA DECAY OF PRIME211 AT, PRIME211 RN AND PRIME207 PO (41.3 PLUS OR MINUS 1.3PERCENT AND 0.028 PLUS OR MINUS 0.003PERCENT) ARE ESTIMATED. FACILITY: JOINT INST. FOR NUCLEAR RESEARCH, DUBNA USSR.

1/2 023 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--THEORY OF OPTIMAL RECEPTION IN A DISPERSION RADIO CHANNEL -U-

AUTHOR--BOCHKAREV, V.A.

COUNTRY OF INFO--USSR

B

SOURCE--KIEV, IZVESTIYA VUZOV SSSR-RADIOELEKTRONIKA, VOL 13, NO 2, 1970,
PP 230-234
DATE PUBLISHED-----70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--COMMUNICATION SYSTEM RELIABILITY, SIGNAL RECEPTION, BINARY
CODE, TELEGRAPH SIGNAL, NOISE REDUCTION, FILTER CIRCUIT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1991/0149

STEP NO--UR/0452/70/013/002/0230/0234

CIRC ACCESSION NO--AP0110115

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0110115

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBLEM OF ESTIMATING THE RELIABILITY OF COMMUNICATION BY THE NOISE IMMUNITY OF AN OPTIMAL NONCOHERENT RECEPTION OF BINARY FREQUENCY TELEGRAPHY SIGNALS IN A SINGLE BEAM RADIO CHANNEL WITH DISPERSION FOR SLOW VARIATIONS OF IONOSPHERE ELECTRON DENSITY AND LOGARITHMICALLY NORMAL FADING OF THE SIGNAL AMPLITUDE IS DISCUSSED. THE METHOD OF AN EARLIER PAPER ("TRANSMISSION OF DISCRETE INFORMATION BY RADIO CHANNELS," BY D. D. KLOVSKIY, IZD-VJ "SVYAS" 1969) IS USED TO SOLVE THE PROBLEM OF ESTIMATING COMMUNICATION RELIABILITY FROM NOISE IMMUNITY WITH CERTAIN INITIAL DATA. IT IS CONCLUDED THAT THE OPTIMAL RECEIVER IS MOST CRITICAL TO FLUCTUATIONS OF PLASMA FREQUENCY IN THE IONOSPHERE LAYER WITHIN THE RATHER BROAD LIMITS OF PLUS OR MINUS MHZ. FOR NORMAL OPERATION OF THE RECEIVER UNDER THE CONDITION OF SLOWLY FLUCTUATION ELECTRON DENSITY CONDITIONS, THERE MUST BE A SET OF FILTER PAIRS WITH EACH PAIR COMPENSATING FOR THE DISPERSION DISTORTIONS IN THE INTERVAL OF LOCAL STEADY STATES WITH THE LEAST AMOUNT OF ERROR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--THEORY OF OPTIMAL RECEPTION IN A DISPERSION RADIO CHANNEL -U-

AUTHOR--BOCHKAREV, V.A.

COUNTRY OF INFO--USSR

SOURCE--KIEV, IZVESTIYA VUZOV SSSR-RADIOELEKTRONIKA, VOL 13, NO 2, 1970,

PP 230-234

DATE PUBLISHED-----70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--COMMUNICATION SYSTEM RELIABILITY, SIGNAL RECEPTION, BINARY
CODE, TELEGRAPH SIGNAL, NOISE REDUCTION, FILTER CIRCUIT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/0149

STEP NO--UR/0452/70/013/002/0230/0234

CIRC ACCESSION NO--AP0110115

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0110115

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBLEM OF ESTIMATING THE RELIABILITY OF COMMUNICATION BY THE NOISE IMMUNITY OF AN OPTIMAL NONCOHERENT RECEPTION OF BINARY FREQUENCY TELEGRAPHY SIGNALS IN A SINGLE BEAM RADIO CHANNEL WITH DISPERSION FOR SLOW VARIATIONS OF IONOSPHERE ELECTRON DENSITY AND LOGARITHMICALLY NORMAL FADING OF THE SIGNAL AMPLITUDE IS DISCUSSED. THE METHOD OF AN EARLIER PAPER ("TRANSMISSION OF DISCRETE INFORMATION BY RADIO CHANNELS," BY D. D. KLOVSKIY, IZD-VJ "SVYAS" 1969) IS USED TO SOLVE THE PROBLEM OF ESTIMATING COMMUNICATION RELIABILITY FROM NOISE IMMUNITY WITH CERTAIN INITIAL DATA. IT IS CONCLUDED THAT THE OPTIMAL RECEIVER IS MOST CRITICAL TO FLUCTUATIONS OF PLASMA FREQUENCY IN THE IONOSPHERE LAYER WITHIN THE RATHER BROAD LIMITS OF PLUS OR MINUS MHZ. FOR NORMAL OPERATION OF THE RECEIVER UNDER THE CONDITION OF SLOWLY FLUCTUATION ELECTRON DENSITY CONDITIONS, THERE MUST BE A SET OF FILTER PAIRS WITH EACH PAIR COMPENSATING FOR THE DISPERSION DISTORTIONS IN THE INTERVAL OF LOCAL STEADY STATES WITH THE LEAST AMOUNT OF ERROR.

UNCLASSIFIED

USSR

UDC 546-655'74'28:548.3

BODAK, O. I., MIS'KIV, M. G., TYVANCHUK, A. T., KHARCHENKO, O. I., and
GLADYSHEVSKIY, YE. I., L'vov State University imeni Ivan Franko

"System Cerium--Nickel--Silicon in the Region 33.3 - 100 at. % Ce"

Moscow, Neorganicheskiye Materialy, Vol. 9, No 5, May 73, pp 864-866

Abstract: A study is made of the phase ratio of the system Ce-Ni-Si in the region 33.3 - 100 at. % Ce. A complete isothermal cross section of the diagram of state is constructed. The area of homogeneity and the crystalline structure of compounds formed in alloys in the interval 33.3 - 100 at. % Ce are determined.

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USSR

UDC [537.226 + 537.311.33] : [537 + 535]

BODAK, O. I., GLADYSHEVSKIY, Ye. I.

"New Semiconductor Silicides of Rare Earth and Alkali Earth Metals"

Uzhgorod, V sb. Nekotor. voopr. khimii i fiz. poluprovodnikov slozhn. sostava (Some Problems of the Chemistry and Physics of Complex Semiconductors -- collection of works), 1970, pp 105-109 (from RZh-Fizika, No 11, 1971, Abstract No 11E953)

Translation: The existence is established and the crystalline structure determined for a series of triple silicides and germanides of R-M-Si (or Ge), where R is a rare earth metal or an alkali metal, and M is a transitional metal of the fourth period (Cu or Al). The absolute value for the σ of these compounds is 10^3 - 10^4 ohm⁻¹cm⁻¹; a reduction in σ is noted with an increase in the Si content of the melts. The variations of σ and the thermal emf with temperature are investigated. N. B.

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BODALEV, A. A.

A. A. Bodaev (Psychology)

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THE PROBLEM OF SOCIAL PERCEPTION

50. 1965 53103
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pp 54-58

"Today new scientists throughout the world are continually joining into the development of the problem of social perception. They are interested in various aspects of this problem, but they are all treating the more or less complex features characterizing the process of forming images of other people in humans, and of forming concepts about their personality. I placed no limitations when I related the formation of a concept about another person as a personality -- that is attributing personality traits and capabilities to him -- to "social perception." The essence here is that the term "social perception" is expanded by many psychologists to encompass all phenomena involved in recognition of humans by each other both at the sensory and the logical levels. Of the numerous aspects of the problem of "social perception," I would now like to discuss four: 1) general psychological; 2) social psychological; 3) social control; 4) ethical and axiological.

The General Psychological Aspect

Of course the universal laws of perception "function" both when we perceive other people and when we perceive objects. Intensity, objectivity, sense, selectivity, consistency, and other properties characterizing the process of formation of an image when we encounter objects directly are involved both when the object perceived is a house, a car, an apple, a table, and when the object is our supervisor, our teacher, our child.

At the same time there are extensive grounds for isolating the process of human perception of humans out of the class of psychological phenomena described by the term "perception" and into a special subclass. Such grounds are provided, first, by general psychology (facts pointed out by A. A. Abramov and V. M. Zaitsev, and by A. N. Zinchenko indicate, for example, the existence of significant differences in the thresholds for recognition of a human face on the one hand and other objects on the other); secondly, there is genetic inheritance, especially animal psychology, and the psychology of early childhood (formation of an image of another species in humans -- N. A. Mikh, formation of an image of another species in children (L. M. Zaitsev, A. A. Lezhnevskaya, A. V. Zaitseva, and others); thirdly, there are important facts related to perception of a picture of a person (V. M. Zaitsev,

1/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--VACUUM DISTILLATION RESIDUES OF KACHANOVSKII DEPOSIT CRUDE OIL FOR
THE PRODUCTION OF ROOFING ASPHALTS -U-
AUTHOR-(03)-GAVRILENKO, I.G., BODAN, A.N., KOSTYUK, B.L.
COUNTRY OF INFO--USSR **B**
SOURCE--NEFT. GAZOV. PROM. 1970, (1), 37-40
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ASPHALT, CRUDE OIL, PETROLEUM DEPOSIT, VACUUM DISTILLATION,
CONSTRUCTION MATERIAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/1968 STEP NO--UR/0513/70/000/001/0037/0040
CIRC ACCESSION NO--AP0133812
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133812

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VACUUM DISTN. RESIDUES B. LARGER THAN 400, 440, AND 490DEGREES WERE TESTED AS FEEDSTOCKS FOR THE PREPN. OF ROOFING ASPHALTS. BY LOW TEMP. OXIDN. WITHOUT COMPRESSION AT 200-250DEGREES, IT WAS POSSIBLE TO PRODUCE IN A PILOT PLANT ACCEPTABLE MATERIALS FROM THE THREE RESIDUES TESTED. THE PROPERTIES OF THE FINAL ASPHALTS ARE TABULATED.

UNCLASSIFIED

USSR

UDC 621.37/.39(031)

BODILOVSKIY, V. G., SMIRNOVA, M. A.

Spravochnik molodogo radista. Izd. 2-e, pererabot. dop. (Young Radio Operator's Manual. Second Edition, Reworked and Supplemented), Moscow, Vysshaya Shkola Press, 1971, 311 pp, ill., 66 k (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A23K)

Translation: Brief information is presented on the principles of radio engineering, electrovacuum and semiconductor devices, radiotechnical materials and radio parts. The problem of amplifying electric oscillations, their generation and reception, pulse shaping, and the electric power supply for radiotechnical devices are discussed. The information on electrovacuum and semiconductor devices is brought up to date and expanded in this edition, and the material of the other chapters is better organized.

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USSR

UDC: 519.24

BODIN, N. A.

"On Rounding Errors in Measurements Using a Randomly Moving Scale"

Tr. Mat. in-ta AN SSSR (Works of the Mathematics Institute, Academy of Sciences of the USSR), 1970, 111, pp 155-162 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V151)

Translation: The author considers rounding-off errors in measurements of an n -dimensional vector quantity by means of a randomly moving scale for two cases of displacement -- discrete and continuous. Some general properties of rounding errors are derived, and the case of normal distribution of random errors is also considered. Conditions are established under which rounding errors have uniform distribution. Ya. Shor.

1/1

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1/2 027 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--COMMUTATION EFFECT IN BISMUTH TYPE SEMIMETALS -U-
AUTHOR--(04)--BIVOL, V.G., BODIUL, P.P., FEDORKO, A.S., GITSU, D.V.
COUNTRY OF INFO--USSR **B**
SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 37, NR 2, PP 545-550
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--BISMUTH, BISMUTH ALLOY, ELECTROMOTIVE FORCE, MAGNETIC FIELD
EFFECT, ANISOTROPY, HIGH TEMPERATURE EFFECT, ENERGY BAND STRUCTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/0628 STEP NO--GE/0030/70/037/002/0545/0550
CIRC ACCESSION NO--AP0107225
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0107225

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. THE DEPENDENCE OF THE NERNST
ETTINGSHAUSEN LONGITUDINAL EFFECT ON THE DIRECTION OF THE MAGNETIC FIELD
FOR THE CASE OF SEMIMETALS IS STUDIED THEORETICALLY AND EXPERIMENTALLY.
A QUITE UNIQUE CORRESPONDENCE IS FOUND BETWEEN THE ANISOTROPY OF THE
EFFECT AND THE BAND STRUCTURE NEAR THE FERMI LEVEL. IT IS SHOWN THAT
THE COMMUTATION EFFECT WHICH DETERMINES THE DEPENDENCE OF THE MAGNETO
THERMO E.M.F. MAGNITUDE ON THE DIRECTION OF THE INDUCTION VECTOR,
PERMITS TO JUDGE ABOUT THE NUMBER AND LOCALIZATION OF BAND EXTREMA IN
THE K SPACE. THIS IS AN EFFECTIVE WAY FOR STUDYING BAND STRUCTURES OF
BISMUTH AND ITS ALLOYS AT HIGH TEMPERATURES.

UNCLASSIFIED

USSR

UDC 621.383.53

BODIYEV, A. B.

"Static Characteristics of Phototransistors"

Moscow, Radiotekhnika, Vol 26, No 3, 1971, pp 96-97

Abstract: The author presents the static output and light characteristics of FTG-3 type germanium transistors switched in according to a scheme with a common emitter. The characteristics are obtained using a test unit with a special calibrated lamp with $T_c = 2854^\circ\text{K}$. Graphoanalytic calculations of the characteristics for various levels of illumination show that the static coefficient of phototransistor amplification is practically constant with respect to β current in the 100 to 400 lux range. The experimental static characteristics of phototransistors show that their switching according to a scheme with a common emitter makes possible the joint control of collector current while varying the intensity of the emission source and base current value without evoking large, nonlinear distortions. Original article: two figures.

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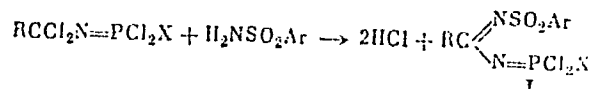
UDC 547.491+546:181

BODNARCHUK, N. D., SEMENY, V. Ya., KUKHAR', V. P. and KIRSANOV, A. V., Institute of Organic Chemistry, Ukrainian Academy of Science SSR

"Phenyldichlorophosphazopolychloroalkanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 984-988

Abstract: Phenyldichlorophosphine was treated with aliphatic nitriles and chlorinated to saturation, to give phenyldichlorophosphazo-1,1,2,2-tetrachloroalkanes. These reactions proceed simultaneously and the products readily hydrolyze, react with amines, alcohols, and phenols. In a further reaction sequence, the phenyldichlorophosphazopolychloroalkanes were treated with arenesulfamide.



X = Cl, Ph.

This reaction proceeds slowly in the temperature range of 110-130°. The product is easily hydrolyzed, reacts with alcohols, amines and phenols to form phenyldichlorophosphazo-N-arylesulfonyliminopolychloro acyl compounds.

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USSR

UDC 547.297'26.118'241.07

BODNARCHUK, N. D., MALOVIK, V. V., and DERKACH, G. I., Institute of Organic Chemistry, Academy of Sciences of the Ukrainian SSR

"A Method of Making Dialkoxyposphonoacetyl Chlorides"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 25, Soviet Patent No 277779, class 12, filed 22 May 69, published 5 Aug 70, p 26

Translation: This Author's Certificate introduces a method of making dialkoxyposphonoacetyl chlorides. As a distinguishing feature of the patent, tert-butyl esters of dialkoxyposphonoacetic acids are treated with phosphorus pentachloride at a temperature of not more than 20°C with subsequent isolation of the products by conventional methods.

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USSR

UDC 547.26'118

BODNARCHUK, N. D., MALOVIK, V. V., DERKACH, G. I. (deceased), Institute of Organic Chemistry, Academy of Sciences, Ukrainian SSR

"Derivatives of Phosphonocarboxylic Acids"

Leningrad, Zhurnal Obsnchei Khimii, Vol 40, No 6, Jun 70, pp 1210-1217

Abstract: The esters of dialkylphosphonoacetic acids (I) are alkylated with methyl iodide; one or both hydrogen atoms of the methylene group are replaced. When I are treated with aqueous ammonia, the corresponding amides are formed. The latter react with oxalyl chloride to yield phosphorylacyl isocyanates. Treatment of I with phosphorus (V) chloride will produce replacement of either one or both of the alkoxy groups at the phosphorus atom of I by chlorine. With sodium cyanate, I yield isocyanates which, when treated with amines, yield substituted ureas.

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USSR

UDC 546.185

BODNARCHUK, N. D., GAVRILENKO, B. B., and DERKACH, the late G. I., Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Phosphapyrimidine Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1466-1469

Abstract: 1,1,3-Trichloro-4-cyano-5-trichloro(dichloro)methyl-1-phosphapyrimidines (I) react with aliphatic amines to give mono-, di- or triamino-substituted phosphapyrimidine derivatives depending on the basicity, structure and quantity of the amine. Heating of I with aromatic amines gives only monoamine derivatives regardless of the quantity of the amine. The interaction of I with alcohols and phenols gives trialkoxy(aroxy) phosphapyrimidine derivatives. Preliminary biological tests of the phosphapyrimidines showed high antimycotic activity, particularly in the case of those containing halide atoms in the benzene rings.

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UDC 546.165

USSR

BORNIACHUK, N. D., GAVRILENKO, B. B., and DERWACH, the late G. I.,
Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR

"Phosphorylation of Enamines with Methyltetrachlorophosphorus and Diphenyl-
trichlorophosphorus"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1469-1473

Abstract: Enamines readily react with methyltetrachlorophosphorus and
diphenyltrichlorophosphorus to give substituted methylaleno- and diethenyl-
chlorophosphazetaylenes. The latter are also obtained from the interaction
of N,N-dichloro-enamines with methyldichlorophosphine and diphenylchlorophosphine.
Chlorophosphazetaylenes react with amines to give anilides.

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UDC 519.2

USSR

BODNARCHUK, P. I., PUSTOMEL'NIKOV, J. P., SLOX'OV'S'KIY, R. V., YAROVIIY, S. S.

"Some Applications of Branch Continued Fractions when Studying Markov Processes"

Dopovidi AN URSR (Reports of the Ukrainian SSR Academy of Sciences), 1972, A,
No 5, pp 391-394, 475 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V37)

Translation: The distribution components at the time n for the Markov chain with a finite number of states are represented in the form of branched continued fractions. This representation is convenient for calculating such probabilities by computer.

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1/2 009 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--METHACRYLIC ESTERS OF SULFUR CONTAINING GLYCOLS -U-

AUTHOR--(05)-RODNARYUK, F.N., KORSHUNOV, M.A., VARSHAVSKIY, S.L.,
VIRHANSKIY, K.N., CHASKINA, L.B.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,392
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, CHEMICAL SYNTHESIS, ORGANIC SULFUR COMPOUND,
ESTER, GLYCOL, METHACRYLATE, POLYMERIZATION INHIBITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1993/0022

STEP NO--UR/0482/70/000/009/0000/0000

CITE ACCESSION NO--AA0113072

UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AA0113022

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPODS. ARE PREPD. BY
TREATING S CONTG. GLYCOLS. WITH ALKYL METHACRYLATES IN THE PRESENCE OF
POLYMN. INHIBITORS AND ALKALI OR ALK. EARTH METAL ALCOHOLATES. -U-

UNCLASSIFIED

89

2/2 010

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0136994

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYACRYLATES ARE PREPD. BY
CONVENTIONAL INTERESTERIFICATION OF ALKYL ESTERS OF MONO AND
DICARBOXYLIC ACIDS WITH THIOGLYCOLS IN INERT SOLVENTS AND IN THE
PRESENCE OF A CATALYST AND AN INHIBITOR.

UNCLASSIFIED

USSR

UDC 629.78.05-52

BODNER, V. A., ALEKSEYEV, K. B., and ZBARSKIY, I. S.

"Synthesis of the Programmed Extensional Control of a Space Turning Maneuver"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, No 2, 1973, pp 5-11

Abstract: The synthesis of the system of the programmed extensional control is analysed on the basis of Pontryagin's maximum principle. The differential equations of the rotary motion of a cosmic apparatus, supplemented by boundary conditions, are used in the synthesis. The analyzed problem of the latter consists in the determination of the temporal program of the change of moments applied to the apparatus along bound axes and ensuring the realization of the prescribed turning maneuver within the minimum possible time. Expressions are derived providing a clear presentation of the changing character of the control moments in time and determining the energy input. The extensional and standard control systems are compared. The calculation method is illustrated on an example. Twelve formulas, two bibliographic references.

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1/2 018 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--THE SYNTHESIS OF THE OPTIMAL CONTROL SYSTEMS OF THE POWER AND THE
ENERGETIC PLANTS FOR SPACE VEHICLES USING NUCLEAR ENERGY -U-
AUTHOR-(05)-BUDNER, V.A., BUGROVSKY, V.V., KANIOVSKY, S.S., MARTIOANOVA,
T.S., RYASANDV, J.A. *B*
COUNTRY OF INFO--USSR, FRANCE

SOURCE--INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL, SYMPOSIUM ON
AUTOMATIC CONTROL, 3RD, TOULOUSE, FRANCE, MAR. 2-6, 1970, PAPER. 33 P.
DATE PUBLISHED-----70

SUBJECT AREAS--SPACE TECHNOLOGY, NAVIGATION

TOPIC TAGS--AUTOMATIC CONTROL SYSTEM, SPACECRAFT NUCLEAR PROPULSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1996/0005

STEP NO--FR/0000/70/000/000/0033/0033

CIRC ACCESSION NO--ATO117305

UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0117305

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE CHARACTERISTICS AND PRINCIPLES OF A COMPLEX, AUTOMATIC CONTROL SYSTEM USED FOR NUCLEAR PROPULSION OF SPACE VEHICLES. SPECIAL ATTENTION IS GIVEN TO A SINGLE, COMPLEX AUTOMATIC CONTROL SYSTEM WITH A VARIABLE STRUCTURE, USING OPERATIONAL REGIMES AND AN INBOARD DISCRETE CONTROL SETUP. AS AN EXAMPLE, THE REALIZATION OF A SYSTEM FOR STABILIZING THE OPERATIONAL REGIME OF A THERMIONIC GENERATOR IS PRESENTED.

UNCLASSIFIED

USSR

UDC: 629.78.05-52

BODNER, V. A., ALEKSEYEV, K. B., and ZBARSKIY, I. S.

"Theory of the Extensive Control of Orientation"

Kazan' Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, No 1, 1973, pp 5-11

Abstract: The authors study a method for changing the orientation of an aircraft by means of a single turn about a Euler axis. Kinematic relationships are given which are used in selecting the control moments necessary for the rotation of the craft. Differential equations are derived for the craft motion which characterize its dynamic properties during extensive control. It is a second order differential equation with its right side being a known time function.

1/1

- 1 -

USSR

UDC 621.373.431.3

B
BODOGUKHOV, Ye. S.

"Shaping Step Pulses for Inclusion of Controlled Semiconductor Rectifiers"

Otbor i peredacha inform. Resp. mezhved. sb (Information Sorting and Transmission. Republic Interdepartmental Collection), 1970, vyp. 24, pp 91-93 (from RZh-Radio-tehnika, No 8, Aug 70, Abstract No 8G274)

Translation: This article contains an investigation of a step pulse shaper circuit for thyristors operating on an inductive load. The pulse consists of two steps. In accordance with the idealized equivalent circuit of the pulse transformer of the shaper, the voltage at the circuit output is determined, and the effect of the parameters of its elements on the shape of the pulse is studied. The bibliography has two entries.

1/1

USSR

UDC: 621.378.325

BODRETSOVA, A. I., BAGDASAROV, Kh. S., KAMINSKIY, A. A., KIRIL-
LOVA, N. N., LEVIKOV, S. I. (deceased)

"Powerful Laser With Pyrolamp-Illuminator Based on $Y_3Al_5O_{12}-Nd^{3+}$ "

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972,
pp 107-108

Abstract: A brief description is given of a quasicontinuous laser with pyrolamp-illuminator based on $Y_3Al_5O_{12}-Nd^{3+}$ with output emission energy of about 1 J at 300°K on a wavelength of 1.064 μm . Lasers with pyrotechnic stimulation have the highest ratio of emission energy to weight. The authors thank A. M. Kevorkov for growing the garnet crystals, and V. N. Gardash'yan for furnishing the calorimeter. One illustration, bibliography of six titles.

1/1

USSR

UDC 621.375.82

BODRETSOVA, A. I., BAGDASAROV, Kh. S., KAMINSKIY, A. A., KIRILLOVA, N. N.,
and LEVIKOV, S. I.

"Powerful Laser With Pyrolamp Illuminator of the Material $Y_3Al_5O_{12}-Nd^{3+}$ "

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works),
No 2, Moscow, "Sov. radio," 1972, pp 107-108 (from RZh-Fizika, No 10,
Oct 72, Abstract No 10D910)

Translation: A quasi-continuous laser with a pyrolamp illuminator of the
material $Y_3Al_5O_{12}-Nd^{3+}$ with an output generation energy of about 1 joule at
300°K at the wavelength 1.064 μ is briefly described. Lasers with pyrotechnic
excitation have the highest generation energy-to-weight ratio. 6 ref.
Authors abstract.

1/1

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Acc. Nr:

AP0041505

Abstracting Service:

CHEMICAL ABST.

4/70

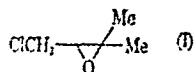
Ref. Code:

U R 0366

B

89561r Molecular rearrangements during addition to unsaturated compounds. V. Intramolecular rearrangement during the halogenation of 3-methyl-1-buten-3-ol. Kartashov, V. R.; Krein, E. N.; Bodrikov, I. V. (Gor'k. Politekhn. Inst., Gor'ki, USSR). *Zh. Org. Khim.* 1970, 6(1), 15-19 (Russ).

The reaction of $\text{H}_2\text{C}=\text{CHCMe}_2\text{OH}$ with *tert*-BuOCl in MeOH at 0-5° gave 8.5% $\text{ClCH}_2\text{CHMeCOMe}$, 2.5% 2-chloromethyl-3,3-dimethyloxirane (I), and 73.5% mixt. of 1:19 $\text{ClCH}_2\text{CH}(\text{OMe})\text{CMe}_2\text{OH}$ (II)- $\text{MeOCH}_2\text{CHClCMe}_2\text{OH}$ (III). The structure of I was proven by dehydrochlorinating $\text{ClCH}_2\text{CHClCMe}_2\text{OH}$ with KOH. The action of KOH on II and III gave, resp., 2-methoxy-



3-methyloxetane or 2-methoxymethyl-3,3-dimethyloxirane. In AcOH soln., 1:1 II-III product ratio is obtained. The formation of anti-Markovnikov product II depends on the electrophilic activity of the entering group and thus changes with the solvent polarity.

CPJR -

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REEL/FRAME

19751373

Acc. Nr:

AP0053763

Abstracting Service:

CHEMICAL ABST. 5-70

Ref. Code:

UR0366

B

110863c Chemistry of cyanogen halides. III. Reactions of cyanogen bromide and iodide in alcoholic solutions of Lewis acids. Danova, B. V.; Bodrikov, I. V. (Gor'k. Politekh. Inst., Gorki, USSR). *Zh. Org. Khim.* 1970, 6(2), 260-2 (Russ). In the presence of 0.21:1 iso-PrOH-ZnCl₂ mixt., 1-methyl-1-cyclohexene (I) does not react with BrCN or ICN. In this case only H₂NCO₂Pr-iso (II) is formed. In the presence of 2.2:1 iso-PrOH-ZnCl₂, the reaction of I with BrCN gave 28% II, 18.5% iso-Pr N-(1-methylcyclohexyl)carbamate, and 14% 1-methyl-1-cyclohexanol. CPJR

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REEL/FRA
19830826

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Acc. Nr.

AP0041508

Abstracting Service:

CHEMICAL ABST.

Ref. Code

UR 0366

4/70
BODRIKOV I.V.

89690g Electrophilic halogenation of olefins. IV. Anomalous chlorination of β -methallyl alcohol ethers. Bodrikov, I. V.; Smolvan, Z. S.; Mamakina, Z. P.; Kartashov, V. R. (Gor'k. Politekh. inst., Gorki, USSR). Zh. Org. Khim. 1970, 6(1), 5-8 (Russ). The chlorination of $\text{ROCH}_2\text{CMe:CH}_2$ (I) (R is Me, Et, or iso-Pr) gives a mixt. of $\text{ROCH}_2\text{C}(\text{CH}_2\text{Cl})\text{CH}_2\text{Cl}$ (II), $\text{ROCHClCMeClCH}_2\text{Cl}$ (III), and a small amt. of $\text{OCH-CMeClCH}_2\text{Cl}$ (IV). The products from I were identified by the prepn. of II from $\text{H}_2\text{C:C}(\text{CH}_2\text{Cl})\text{CH}_2\text{Br}$ and RONa and the degradation of III with CaCO_3 to IV. The formation of II and III proceeds through the intermediate ion $\text{ROCH}_2\text{C}^+\text{MeCH}_2\text{Cl}$, which loses H^+ preferentially from the Me group giving II as the major product. CPJR

REEL/FRAME

19751376

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ELECTROPHILIC HALOGENATION OF OLEFINS. V. KINETICS AND MECHANISM OF
BETA METHYLALLYL HALIDE CHLORINATION -U-
AUTHOR--(04)--BODRIKOV, I.V., SPIRIDONOVA, S.V., SMOLYAN, Z.S., SUBBOTIN,
A.I.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(4), 684-90 *B*
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHLORINATION, ELKENE, EXCHANGE REACTION, REACTION KINETICS,
CHEMICAL REACTION MECHANISM
CENTREL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1958 STEP NO--UR/0366/70/006/004/0684/0690
CIRC ACCESSION NO--AP0125547
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--300CT70

CIRC ACCESSION NO--AP0125547

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHLORINATION OF H SUB2 C:CMCH SUB2 X (I) (X IS CL, BR, OR I) GIVES THE SUBSTITUTION PRODUCTS H SUB2 C:CLCH SUB2 CL)CH SUB2 X, CLCH SUB2 CME:CHX, AND THE ADDN. PRODUCTS CLCH SUB2 CMECLCH SUB2 X. THE REACTION RATE IS INCREASED BY HCL, WHICH IS LIBERATED IN THE COURSE OF THE REACTION. THE CONSUMPTION OF CL INCREASES IN THE FOLLOWING I SERIES (X GIVEN): I LARGER THAN BR LARGER THAN CL. THE SUBSTITUTION PRODUCTS ADDN. PRODUCTS RATIO INCREASES IN THE REVERSE ORDER. THE SUBSTITUTION PRODUCTS ARE FORMED THROUGH THE INTERMEDIATE CARBONIUM ION AND THE ADDN. PRODUCTS THROUGH A CYCLIC CARBONIUMION. FACILITY: GOR'K. POLITEKH. INST., GORKI, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--REACTION OF CYANOGEN CHLORIDE WITH ALCOHOLS IN ETHER SOLUTIONS OF
LEWIS ACIDS -U-
AUTHOR--(02)-DANQVA, B.V., BODRIKOV, I.V. *B*
COUNTRY OF INFO--USSR
SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 235-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CYANOGEN CHLORIDE, ALCOHOL, ESTER, CYCLOHEXENE, PROPANOL,
CHEMICAL SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1192 STEP NO--UR/0063/70/015/002/0235/0236
CIRC ACCESSION NO--AP0128610
UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0123610

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO 1 MOLE ET SUB2 D AND 0.4-2.0 MOLE ROH WAS ADDED AT NEGATIVE 15DEGREES 0.12-0.4 MOLE ALCL SUB3 AND 0.2-0.4 MOLE CLCN INTRODUCED THROUGH A BUBBLER SMALLER THAN NEGATIVE 8DEGREES, AND THE MIXT. WAS WARMED TO ROOM TEMP. AND KEPT. 4-5 HR TO YIELD GC(OR) SUB2: R EQUALS PR, B. 166DEGREES, N PRIME20 SUBD 1.4110, D PRIME20 C.9420; AMYL (77PERCENT), B SUB3 102DEGREES, 1.4220, 0.9088; PH, M. 78DEGREES; AND P,MEC SUB6 H SUB4, M. 109DEGREES. THE DI,PR ESTER WAS ALSO FORMED IN LOW YIELD INCHLOROCYANATION OF METHYLCYCLOHEXENE AND NE SUB2 C:OME SUB2 IN PROH WITH ALCL SUB3 CATALYST. THE YIELDS OF THE ABOVE REACTIONS WERE 15-75PERCENT. FACILITY: GOR'K. POLITEKH. INST. IM. ZHDANOVA, GOR'KI, USSR.

UNCLASSIFIED

BODROY, V. A.

720 57541
17 NOV 72

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However, the data cited in the literature concerning man's psychic activity can scarcely be considered exhaustive. For example, it does not contain information characterizing the dynamics of the state of man's psychic functions in the case of his military presence at depth; there is also no information concerning the aftereffect of man's presence at great pressure on his psyche. Also unidentified are the differences in man's adaptive capabilities in relation to differences in age, sex, work and rest regime during the period of immersion at depth, etc. The purpose of our investigation was an evaluation of the state of man's psychic functions both during a period of prolonged (up to 30 days) presence at depth up to 100 m during the breathing of nitrogen-oxygen and helium-oxygen mixtures and after emergence at the surface.

Conquest of the depths of the world ocean and the related need for the prolonged presence of equinants under increased pressure have made it necessary to solve the question of man's corresponding possibilities of adaptation, and in particular, the possibility of his retention of mental performance. The number of investigations devoted to this problem is relatively small. Nevertheless, on the basis of data available in the literature one can form a certain idea concerning the state of the psycho-physiological functions in man exposed to increased pressure. In particular, it follows from these data that man can adapt to presence at great depths due to preliminary repeated brief dives, the possibility of prolonged multiday presence under pressure to six atmospheres during the breathing of a helium-oxygen mixture (HOM), as well as the advantage of helium-oxygen mixtures over nitrogen-oxygen mixtures (NOM) at depths from 30.5 m or more.

STUDY OF SOME PSYCHIC FUNCTIONS OF AQUANAUTS DURING PROLONGED EXPOSURE TO INCREASED PRESSURE

UDC 610.19.022.5

Article by V. A. Bodroy, A. S. Kozlov and A. V. Kozlov, Abstracts of the 1st International Symposium on Human Adaptation to Space and Underwater Environments, Moscow, 30 B. August 1972, submitted March 1973, pp. 71-73.

Bibli

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CERTAIN PROBLEM OF SYNTHESIS OF SYSTEM OF OPTIMAL CONTROL -U-
AUTHOR--(04)--ANISIMOV, I.V., BCDROV, V.I., KOSHCHAYEV, N.N., FOMIN, N.G.
COUNTRY OF INFO--USSR
SOURCE--AVTOMATIKA I TELEMEXHANIKA, 1970, NR 6, PP 118-123
DATE PUBLISHED--70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATHEMATICAL SCIENCES
TOPIC TAGS--OPTIMAL AUTOMATIC CONTROL, PERTURBATION METHOD, ALGORITHM,
AUTOMATIC CHEMICAL PROCESS CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1009

STEP NO--UR/0103/70/000/006/0118/0123

CIRC ACCESSION NO--AP0124668

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124668

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PROBLEM OF THE SYNTHESIS OF A SYSTEM OF OPTIMAL CONTROL BY THE INTEGRAL CRITERION FOR A CLASS OF OBJECTS IS CONSIDERED. THE SYSTEM IS ACTED UPON BY CONSTANTLY MEASURED DISTURBANCES. AN ALGORITHM OF THE OPTIMAL CONTROL OF A RECTIFICATION COLUMN UNDER THE DISTURBANCE CONCERNING THE COMPOSITION OF THE INITIAL MIXTURE IS SUGGESTED.

UNCLASSIFIED

USSR

UDC: 621.372.837(088.8)

BODROV, V. N.

"An Antenna Switch"

USSR Author's Certificate No 261496, filed 28 Mar 68, published 8 May 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B171 P)

Translation: This Author's Certificate introduces an antenna switch with H_{01} wave made up of two coaxial metal cylinders. The smaller-diameter cylinder (inner circular waveguide) has an annular slot in which an annular electrodeless discharger is installed and filled with gas at low pressure. In the inner cylinder is a waveguide adapter which goes from a circular waveguide with H_{01} wave to a rectangular waveguide with H_{10} wave. The adapter terminates with a bend of the rectangular waveguide in the H plane and passes through a coaxial waveguide in the radial direction to the receiver. To reduce reflections and cut losses in conversion of the H_{01} wave of the coaxial waveguide, the height (dimension of the narrow wall) of the bend in the rectangular waveguide in the region of the coaxial line is made as small as possible. Wedge-shaped plates are used to reduce reflections from the bend still further. The inner cylinder is fixed with respect to the outer cylinder by thin metal plates. The diameters of the cylinders and length of the slot are selected from the condition of complete coupling of H_{01} waves

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BODROV, V. N., USSR Author's Certificate No 11B171 P

of the coaxial and inner circular waveguides. The switch design makes it possible to increase the electrical strength. Two illustrations. A. K.

2/2

USSR

UDC 621.372.837

BODROV, V. N. *B*

"An Antenna Switch"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 5, 1970, p 47, patent No 261496, filed 28 Mar 68

Abstract: This Author's Certificate introduces an antenna switch with H_{01} mode. The unit is formed by two coaxial metal cylinders, a total coupling annular slit in the smaller-diameter cylinder, and an annular discharger. As a distinguishing feature of the patent, electrical strength is increased by placing an adapter from a waveguide with circular cross section for the H_{01} mode to a rectangular waveguide for the H_{01} mode in the inner cylinder. This adapter terminates in a rectangular waveguide elbow in the H-plane. The transmitter and antenna are connected to the opposite ends of the coaxial waveguide, and the receiver is connected to the rectangular waveguide.

1/1

USSR

UDC 631.811.98:581.1

BODROV, V. P., Tambov Agricultural Experimental Station

"Effect of Gibberellin and Heteroauxin on the Physiological and Biochemical Processes in Sunflower Plants"

Moscow, Khimiya v sel'skom khozyaystve, Vol 9, No 8, 1971, pp 47-50

Abstract: Despite the vast amount of research on the effects of Gibberellin (GB) and heteroauxin (HA) on the various physiological and biochemical processes in plants, there is very little information on the mechanism of their effects. Moreover, the available information is frequently contradictory. References have been earlier made to photosynthesis, changes in nitrogen, sugar and organophosphorus contents, etc. This paper describes a study on this subject conducted by the Tambov Agricultural Experimental Station in 1968-1969. The testing procedure is detailed. The study indicates that both GB and HA promote the intensity of physiological and biochemical processes in sunflower plants, increasing both their yield of nutrients and crops: of seeds in
1/2

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USSR

BODROV, V. P., Khimiya v sel'skom khozyaystve, Vol 9, No 6, 1971, pp 47-50

test variants with heteroauxin and of vegetative mass in variants with Gibberellin. The nature of the action of both growth regulators is different. Heteroauxin promotes the intensity of photosynthesis and respiration and increases the runoff of nitrogen, phosphorus and potassium to the reproductive organs of the plant. Gibberellin stimulates the intake of potassium from the soil and its transfer to all plant organs as well as the accumulation of sugar in leaves, stems and pedicles in the initial development stages thus accelerating plant growth. One of the factors responsible for changes in plant growth and redistribution of matter over plant organs is the improved utilization of macroenergy phosphate bonds and a certain increase in potassium metabolism.

2/2

USSR

UDC 632.95

KORNOUKHOVA, M. V., LOMAKINA, V. I., MANDEL'BAUM, Ya. A., GAR, K. A.,
GOLYSHIN, N. M., BOKAREV, Ye. M., FEDOSEYENKO, L. G., and BOBKOVA, M. R.

"Reaction of Thiophosphate Hydrazides with Sulfochlorides"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of works), No 2, Moscow, 1972, pp 194-199 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 228567 by L. V. Razvodovskaya)

Translation: Compounds with the general formula $R^1(RO)P(S)NHNHCO_2R^2$ (I) and $R^3XP(S)(NHNHCO_2R^2)_2$ (II) (R = alkyl, R^1 = aryloxy, NHR , NR_2 , R^2 2 R^3 = alkyl, aryl, X = O or NH) are obtained from the reaction of $R^1(RO)P(S)NHNH_2$ (III) or $R^3XP(S)(NHNH_2)_2$ (IV) with $ClSO_2R^2$. Examples. (1) 0.03 mole of Et_3N solution in 30 ml of C_6H_6 at 20° is added to 0.03 mole of III (R = Et, R^1 = PhO) and 0.03 mole of Et_3N in 70 ml of C_6H_6 . The mixture is mixed for 5 hours at 35 to 40° and the sediment is filtered off. The filtrate is washed, dried, and the solvent distilled off to obtain I (R = R^2 = Et, R^1 = PhO, yield 66%, melting point $91-93^\circ$). I is obtained in a similar fashion (R , R^1 , yield in %, melting point in $^\circ C$ or n_D^{20} and d_4^{20} are given): Me, iso-PrNH, Me, 70, 1.5204, 1.2984; 1/2

USSR

KORNOUKHOVA, M. V., et al., Khim. sredstva zashchity rast, No 2, 1972, pp 194-199

Et, iso-PrNH, Ph, 56, 117-8; Et, iso-BuNH, Me, 84, 1.505, 1.1974; Ph, iso-PrNH, Et, 68, 66-8; Et, Me₂N, PhMe, 30, 78-80; Et, Et₂N, Et, 50, 1.5148, 1.2035; Et, Et₂N, PhMe, 55, 1.5350, 1.1756; Et, PhO, Ph, 55, 72-4. (2) 0.05 mole of PhSO₂Cl at 20° is added to a solution of 0.05 mole of IV (R³X = PhO) and 0.05 mole of Et₃N in 100 ml of alcohol. The mixture is mixed for 6 hours at 20° and 8 hours at 60-70°; the alcohol is distilled off in part. The sediment is filtered off and the filtrate evaporated to obtain II (R²=R³=Ph, X = O), yield 56%, melting point 168-70°. II is obtained in a similar fashion (R³X, R² yield in %, melting point in °C are given): EtO, Et, 50, 158-60, EtO, Ph, 30, 102-5; PhO, Me, 45, 173-5; PhNH, Me, 46, -. I and II have fungicidal and weak contact insecticidal activity.

2/2

- 33 -

1/2 049 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--ANISOTROPY OF COLLOIDS AND THE WEIGERT EFFECT IN SODIUM CHLORIDE
CRYSTALS -U-
AUTHOR-(03)-BEZRUCHKO, V.M., BODRYAGIN, V.I., SHATALOV, A.A.
COUNTRY OF INFO--USSR **B**
SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1091-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--SODIUM CHLORIDE, ANISOTROPY, RADIATION EFFECT, POLARIZED
LUMINESCENCE, COLLOID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3002/1370 STEP NO--UR/0181/70/012/004/1091/1094
CIRC ACCESSION NO--AP0128770
UNCLASSIFIED

2/2 049

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0128770

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TEMP. DEPENDENCE WAS INVESTIGATED OF THE HERSHEL EFFECT ON NA COLLOIDS IN NA CL CRYSTALS. BY IRRADN. WITH POLARIZED LIGHT, A DIRECTED DECOMPN. OF THE COLLOIDS WAS OBSD. WHICH TOGETHER WITH THERMAL GROWTH OF THESE COLLOIDS LEADS TO A TRANSFORMATION FROM SPHERICAL TO ELLIPSOIDAL PARTICLES. GOOD AGREEMENT WAS OBTAINED BETWEEN THE EXPTL. AND CALCD. DICHROISM OF THE COLLOIDS. FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

AA0036249

B

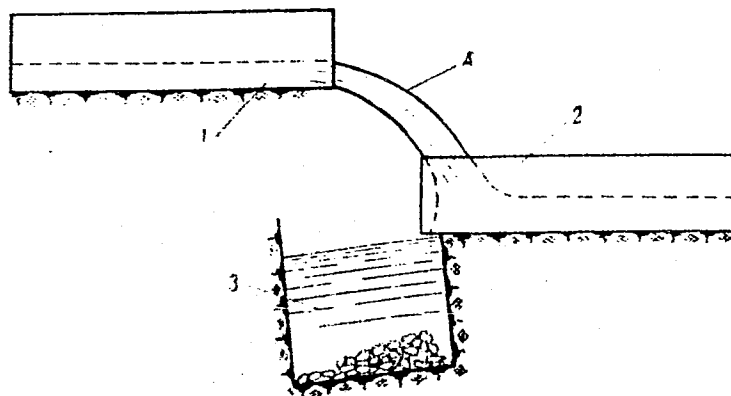
UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-76

236368 SEPARATING METALS FROM SLURRIES in a system of hydraulic transportation involving pipes, as in the diagram, where the slurry is transferred to the trough 1 from which it flows across the gap into a second trough 2, the actual flow pattern being indicated at A'. Because the angle and speed of the flow trajectory is adjusted, any metals contained therein fall out through the bottom of the flowing slurry and into the containing vessel 3. As well as increasing the rate of recovery of the metals, this design also simplifies the construction. 18.11.67. as 1197076/27-11. L. D. BODRINOV (18.6.69.) Bul.7/3.2.69. Class 1a. Int.Cl. B03b

19721078


AA0036249



19721079

USSR

UDC 621.376.32

BODUNOV, V. P. 

"Shaping the Modulation Characteristic of a RC-Frequency Modulator with an Active Control Element"

Otbor i peredacha inform. Resp. mezhved. sb. (Information Sorting and Transmission. Republic Interdepartmental Collection), 1970, vyp. 24, pp 56-62 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D235)

Translation: An estimate of various schemes for inertialess resistances used in frequency modulators is presented, and a procedure is also presented for shaping the linear modulation characteristic. There are three illustrations and a two-entry bibliography.

1/1

- 137 -

USSR

UDC 621.791.052:621.787:620.169.1;
669.295:620.178.311.868

LUK'YANOV, V. F., OLIFER, V. V., LYUDMIRSKIY, Yu. G., KHESIN, Yu. D.,
BODUNOVA, M. B., Rostov-na-Donu Institute of Agricultural Machine Building

"Influence of Surface Hardening on Low-Cycle Durability of Type B120VCA
Titanium Alloy in a Corrosive Medium"

Moscow, Svarochnoye Proizvodstvo, No 10, Oct 72, pp 26-27.

Abstract: A method of testing welded joints in biaxial bending is developed, allowing the influence of a corrosive medium on low-cycle fatigue of joints to be determined. Tests are performed in a 3% solution of NaCl under loading conditions characteristic for sheet structures. In the test installation developed, the specimen is suspended over a cavity and deformed by the pressure of air pumped into the sealed cavity, with the top of the specimen covered by the salt solution. The tests indicate that plastic deformation of a welded joint by rolling of the joint between narrow rolls can significantly increase durability under these conditions.

1/1

Single Crystals

B

USSR

UDC 648.55

PERFILOVA, V. E., BODYACHEVSKIY, S. V., AVVAKUMOVA, L. A., and DERMAN, A. S.

"Study of the Temperature Fields of Melts for Growing Single Crystals"

Moscow, Neorganicheskiye Materialy, Vol 6, No 1, Jan 70, pp 100-103

Abstract: An investigation was made of the temperature fields of aggressive solutions of V_2O_3 - Fe_2O_3 in BaO - B_2O_3 and PbO - PbS_2 - B_2O_3 melts to determine the optimal temperature conditions for growing single crystals. The temperature fields were measured in the 1000-1250°C range. During one experiment the temperatures were measured in several horizontal planes of the melt and the temperature field was constructed from this. It was established that there are zones of thermal conductivity and free convection zones in the melt.

It is pointed out that the planar isotherms in the upper part of the melt arise from the fact that the heat transfer is realized as a result of thermal conductivity. The absence of convection in the liquid is characterized by the fact that the Rayleigh criterion does not exceed 1710, i.e., $Ra + Pr \cdot Gr < 1710$. The value of Ra was calculated for a boron-barium melt. In order to spread the region of existence of convection to the entire volume of the melt, it is necessary to increase the mean temperature level. In order to maintain crystallization

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PERFILOVA, V. E., et al, Neorganicheskiye Materialy, Vol 6, No 1, Jan 70,
pp 100-103

conditions when doing this, the concentration of crystal-forming oxides must be increased.

It is also pointed out that the calculated values of the Rayleigh numbers confirm that the measured temperature fields correctly reflect the heat-exchange processes taking place in the melt. When growing single crystals from the investigated systems on a seed charge, the crystal grows in the upper part of the melt. As the temperature is decreased, the zone of thermal conductivity increases. Crystal growth becomes difficult since the melt surrounding the crystal is impoverished by the garnet phase. At the same time, the zone of thermal conductivity prevents penetration of the convective fluxes rich in crystal forming oxides into the crystal. Consequently, the mass transfer in this region can be realized only by diffusion.

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104739a Temperature fields of melts for growing single crystals. Perfilova, V. E.; Bodvachevskii, S. V.; Avvakumova, L. A.; Derman, A. S. (Vses. Nauch.-Issled. Inst. Elektroterm. Oborudovaniya, USSR). *Izv. Akad. Nauk SSSR, Neorg. Mater.* 1970, 6(1), 100-3 (Russ). To det. the optimum temp. conditions for the growth of single crystals, temp. fields of aggressive V_2O_5 - Fe_2O_3 soln. in BaO - B_2O_3 and PbO - PbF_2 - B_2O_3 melts were studied. The temp. fields were examd. at 1000-1250°. The presence of a thermal cond. zone and a free convection zone was established in the melts. S. A. Mersol

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Aluminum and Its Alloys

USSR

UDC 621.74.043.06

RUDENKO, A. F., BODYAKO, M. N., and ROVKACH, V. R., Physico-Technical
Institute, Academy of Sciences BSSR

"The Possibility of Increasing the Thickness of an Anode
Coating on an Aluminum Chill-Mold"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnich-
eskikh Nauk, No 4, 1973, pp 53-57

Abstract: The authors of this article have selected the optimal composition of an electrolyte for a thick-layer anodizing of aluminum chill-molds. They established the experimental dependences between the size of the electrical parameters (anode current density, voltage on the vat terminals) and thickness of the anode coating on the working surface of the aluminum forms. They show the necessity of using powerful sources of direct current for depositing an anode coating thicker than 0.25 mm.

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USSR

RUDENKO, A. F., et al., Izvestiya Akademii Nauk BSSR, Seriya Fiziko-Tekhnicheskikh Nauk, No 4, 1973, pp 53-57

Figure 1 illustrates the anodizing of experimental aluminum chill-molds and Figure 2 shows the change in voltage and current density as a function of growth in thickness of the anode coating. Table 1 gives the dependence of specific rate of growth in the anode film on the AL9 alloy on the amount of Mg in it and on the composition of the electrolyte. Table 2 shows the dependence of maximal thickness of the anode film on chill-molds of the AL9 alloy on the amount of magnesium in it.

The article contains 2 illustrations, 2 tables, and 4 bibliographic references.

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Miscellaneous

USSR

BODYAKO, M. N., Doctor of Technical Sciences, and ASTAPCHIK, S. A., Candidate of Technical Sciences

Sverkhtverdyye Materialy i Tekhnika (Superhard Materials and Technology), Moscow, "Znaniye," 1971, 29 pp.

Translation of Annotation: The development of technology is tied to an increase in the working parameters of parts, constructions, and, consequently, the materials from which they are made. This is explained by increased operating temperatures during the simultaneous action of significantly long and cyclic loads under conditions of aggressive media. The hardest objects for primitive man were bone and stone. These were replaced by bronze and iron, and thus was completed the revolution in which man was established as the active shaper of his environment and of himself. It was only twenty years ago that technology developed materials which could operate at temperatures up to 750--800° C. But today, we speak of materials which can operate at 1000--1500° C. This booklet discusses superhard materials and their use in current technology.

Translation of Table of Contents:

Requirements of Current Technology for Materials -- 3

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BODYAKO, M. N., and ASTAPCHIK, S. A., Sverkhtverdyye Materialy
i Tekhnika, Moscow, "Zaaniye," 1971, 29 pp

High-Melting Metallic and Nonmetallic Elements -- 5

High-Melting Compounds -- 7

Very Hard Alloys -- 11

Areas of Application of Superhard Materials -- 18

Hard Materials: Now and in the Future -- 25

- END -

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1/2 032 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--THERMAL TREATMENT AND PROPERTIES OF MARTENSITE AGING STEEL OF THE
00N12K16M11 TYPE -U-
AUTHOR-(04)-BODYAKO, M.N., ASTAPCHIK, S.A., YAROSHEVICH, G.B., OLEFIRENKO,
V.M.
COUNTRY OF INFO--USSR
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BODYAKO, M. N., SACHKOV, V. V., ASTAPCHIK, S. A., and OLEFIRENKO,
V. M., Physicotechnical Institute, Academy of Sciences BSSR

"On the Question of Work Hardening and Softening of Martensite-
Aged Steels"

Minsk, Akademiya Nauk BSSR, Izvestiya, Seriya Fiziko-Tekhnicheskikh Nauk, No 2, 1970, pp 46-50

Abstract: A study was made of phase and structural transformations in martensite-aged steel with increased content of cobalt and molybdenum under the conditions of fast continuous heating and after different regimes of cold and hot deformation. The steel had the following chemical composition (wt. %): C -- 0.022; Ni -- 12.4; Mo -- 10.8; Co -- 16.48; Ti -- 0.10; Al -- 0.08; Mn -- 0.02; Si -- 0.05; B -- 0.003; P -- 0.0045. Results are presented of the investigation of heat hardening and softening of martensite-aged steel after cold and hot deformation under conditions of electrical heating at rates up to 300 deg/sec.

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PROCESSING DATE--09OCT70

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY TAKING INTO ACCOUNT THE RESULTS OF PREVIOUS WORK (B., ET AL., 1968), THE PRESENT WORK CONSTITUTES A FURTHER AND MORE DETAILED STUDY OF THE NATURE OF STRUCTURAL TRANSFORMATIONS AND PROPERTIES OF THE TITLE ALLOY. THE MATERIAL WAS HOMOGENIZED, FORGED, AGED, AND HARDENED. ANAL. OF THE DATA SHOWS THAT WITHIN THE AGING RANGE WHICH IS GENERALLY RECOMMENDED AS BEING THE OPTIMUM ONE, ONE CAN OBTAIN HIGH STRENGTH VALUES, NAMELY, 260-300 KG-MM PRIME2. THE PLASTICITY THEREBY IS VERY SATISFACTORY. UNDER REAL CONDITIONS DURING THE EXISTANT TECHNIOL. OF MILLING AND HOT PROCESSING OF STEEL IT IS DIFFICULT TO PREVENT STRESS CONCENT., IN THE FORM OF DEFECTS IMPURITIES, FROM ENTERING THE MATERIAL. THE STRENGTHENING OF MARTENSITE DURING AGING IS ASSOC'D. WITH THE EARLY STAGES OF FORMATION OF PARTICLES OF THE SECONDARY PHASE. THE DIFFERENCES BETWEEN LOW TEMP. AND HIGH TEMP. AGING ARE DISCUSSED. QUENCHING IS THE ONE PROCESS THAT WOULD MOST SIGNIFICANTLY REDUCE THE LARGE SCATTER IN THE PROPERTIES OF THE MATERIAL FROM SAMPLE TO SAMPLE. CORRECT MARTENSITE AGING OF HOT ROLLED STEEL 00N12K16M11 AT 480-520DEGREES FOR 3 HR WILL RESULT IN STRENGTH VALUES OF 260-300 KG-MM PRIME2, WITH SATISFACTORY PLASTICITY AND DUCTILITY VALUES. RAPID CONTINUOUS HEATING AT 950-1200DEGREES MAKES IT POSSIBLE TO OBTAIN A FINE GRAINED (5-30 MU) STRUCTURE. HOWEVER, NO SUBSEQUENT AGING PRODUCES SATISFACTORY PLASTICITY. FACILITY: FIZ. TEKH. INST., MINSK, USSR.

UNCLASSIFIED

USSR

UDC 629.113

BODYANIK, I. I., Candidate of Technical Sciences

"The Creation of a Support System for All-Terrain Vehicles"

Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, No 11, 1971,
pp 135-136.

ABSTRACT: A general description is presented of band-supported vehicles, in which the weight of the vehicle is supported by an elastic continuous band, with the weight resting on the upper (forward-moving) section of the band, so that weight is distributed evenly over the lower (stationary) portion of the band, rather than resting directly on wheels contacting the lower portion of the band as is the case with ordinary tracked vehicles. The vehicle is driven forward by a driving wheel which meshes with the top portion of the band. The calculations presented confirm the possibility of creating a supporting and drive system, the main element of which is an elastic flexible band.

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Refractory Materials

USSR

BOFACHEV, I. N., VEKSLER, YU. G., and KARASYUK, YU. A., Ural Polytechnical Institute

"Features of Cavitation Fracture in Refractory Metals and Alloys"

Novokuznetsk, IzVUZ-Chernaya Metallurgiya, No 6, 1971, pp 111-116

Abstract: Refractory metals with a b.c.c. lattice and alloys based on these metals are used extensively in the manufacture of pipelines and pump parts for the transfer of molten metal heat carriers in nuclear power engineering. A study was made of the features of deformation and fracture of refractory metals and refractory metal-based alloys under conditions of cavitation-erosion action. It was found that for one and the same refractory metal with a b.c.c. lattice the cavitation resistance and nature of fracture, kinetics, and depth of strengthening the surface layer depend on the condition of the metal (cast or powder metal). The character and magnitude of this difference depends on the nature of the metal as well as the size and distribution of micropores in the powder-metal material. The relatively high cavitation resistance of tungsten has been linked with its high strength properties. For an alloy of molybdenum with 47% Re the combination of high initial strength and hardness with intensive strengthening in the initial period of 1/2

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BOGACHEV, I. N., et al., IzVUZ -- Chernaya Metallurgiya, No 6, 1971,
pp 111-116

testing gives it a significantly higher resistance in comparison with tungsten. For powdered molybdenum and especially tungsten, the primary start of fracture at the grain boundaries was characteristic. In the case of a significant magnitude of micropores (powder-metal niobium), nucleation fractures are involved. For cast molybdenum and niobium a significant plastic deformation of the surface precedes failure. In contrast to molybdenum, primary fracture of the grain boundaries is not observed in niobium. Five figures, one table, 12 bibliographic references.

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BOFOMOLOV, G. D., ALYAMOVSKIY, S. I., SHVEYKIN, G. P., and LYUBIKOV, V. D.,
Institute of Chemistry, Ural Branch of the Academy of Sciences USSR

"Certain Structural Characteristics of Cubic Titanium Oxycarbide"

Moscow, Neorganicheskiye Materialy, Vol 6, No 8, Aug 70, pp 1405-1408

Abstract: This report presents information on the area of single-phase existence, concentration dependence of lattice periods, and degree of filling of the elementary TiC_{xO_y} unit cell. Seventy specimens were made by pressing carefully ground mixtures of the initial components, followed by sintering at $1500^{\circ}C$ and 10^{-7} mm Hg for 30-50 hr. Sixty of the specimens were found to be single-phase specimens. The specimens were subjected to X-ray and chemical analysis. A phase diagram of the $Ti-TiC_{1.3}-TiO_{1.3}$ system at $1500^{\circ}C$ and $p = 10^{-3}$ mm Hg is presented. Data on the full mutual solubility of cubic TiC_x and TiO_y phases accompanied by formation of the TiC_{xO_y} oxycarbide are confirmed. It is assumed that the concentration dependence of the lattice periods of TiC_{xO_y} is complex. The linearity of the function $n_g = f(x)$ is confirmed, where n_g is the number of carbon particles in a TiC_{xO_y} unit cell. 1/1

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